LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY
-LIGO-
CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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ISS Autotracker
Ash Khan akhan@ligo-la.caltech.edu

This is an internal working note
of the LIGO Project.

California Institute of Technology
LIGO Project – MS 51-33
Pasadena CA 91125
Phone (626) 395-2129
Fax (626) 304-9834
E-mail: info@ligo.caltech.edu
Massachusetts Institute of Technology
LIGO Project – MS 20B-145
Cambridge, MA 01239
Phone (617) 253-4824
Fax (617) 253-7014
E-mail: info@ligo.mit.edu

Revision Notes:

Initial draft: Dated 11/08/2003

Overview

The goal of the ISS Autotracker is to track the low frequency fluctuations on the ISS photodiode and automatically adjust the DC Offset input to the ISS servo.

The enhancements include the following:

1) Automatically adjust the DC Offset input to the ISS Servo.
2) Automatically disengages the ISS auto-tracking when the PMC is not locked
3) Initial estimate is computed based on the ratio of the PD Path gain (41.2) and the Sum Path gain (40.2) times the INPDMON Signal.
4) Add a DC offset to the ISS servo using an algorithm that computes a scaled value of the LF Actuator drift. It essentially acts as a slow integrator of the error signal (the L1:PSL-ISS_LFACTDRIVE) of the ISS servo.
5) Provide auto/manual override switch that would disengage the Autotracker loop and engage the offset value from a manual slider (existing design)

The ISS Servo, the current implementation

Currently, we have scripts that provide the desired DC offset using ezcaservo integrator. Activating the script brings the DC offset to the level of the PMC Transmission photodiode.

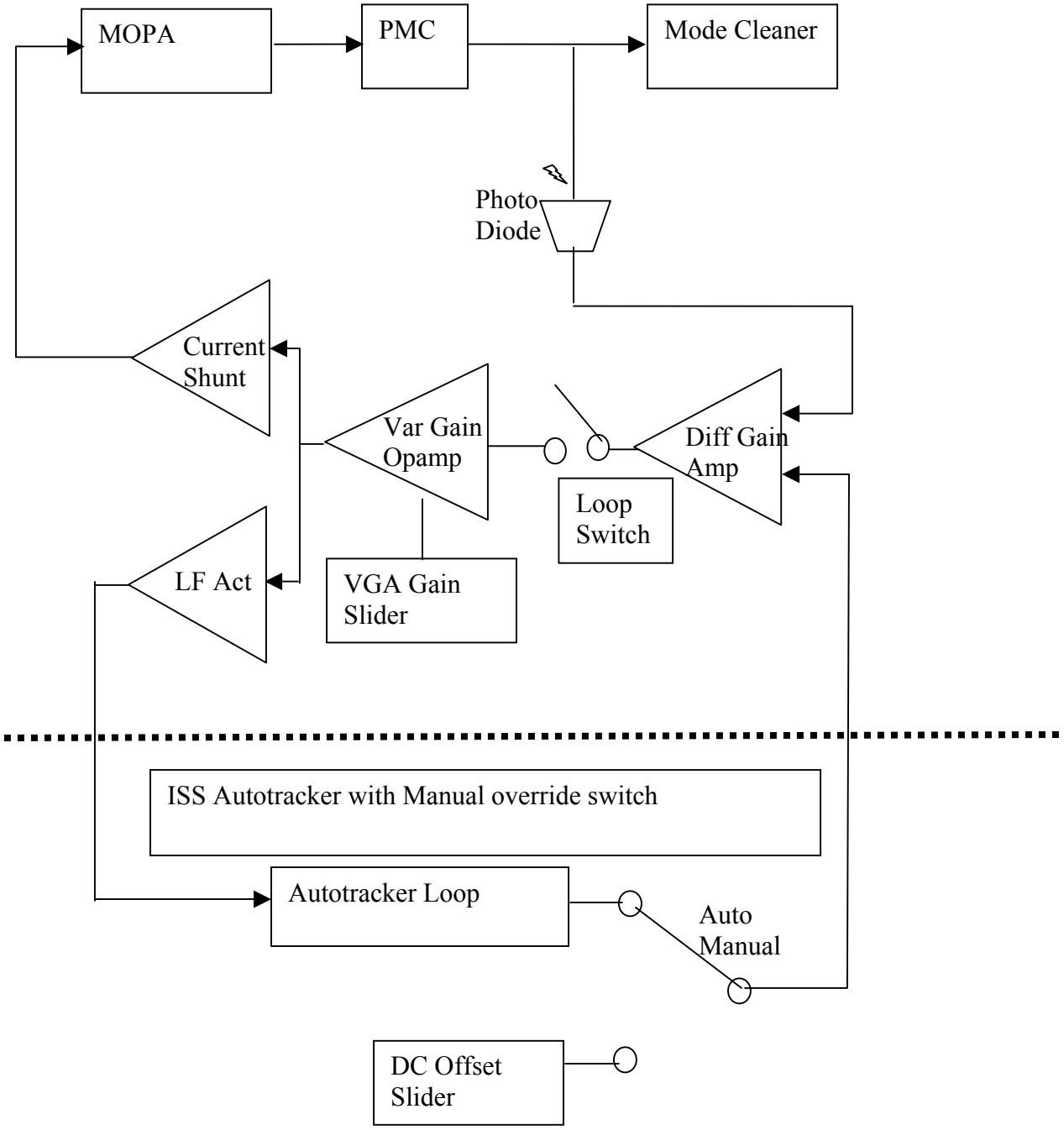
The script lacks the desired operating criteria as it is does not run in continuous mode. It does not check for the PMC output and it requires Operator intervention.

The enhancements as mentioned above would improve the ISS servo functionality.

Note:
The state code file is named isslock.st,
The database file is named isslock.db

The code is intended to be placed in l1psl or l1iool0 crate

The ISS Servo, proposed changes



Software Flow chart for the ISS Autotracker